U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 USC 371

ATTORNEY DOCKET NO.: 401303

U.S. APPLICATION NO.: 09/889665

INTERNATIONAL APPLICATION NO.: PCT/JP00/00158

INTERNATIONAL FILING DATE: January 17, 2000

PRIORITY DATE CLAIMED:

TITLE OF INVENTION: ELEVATOR SYSTEM

APPLICANT(S) FOR DO/EO/US: Shigeki YAMAKAWA

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 USC 371.

2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 USC 371.

3. ☒ This is an express request to begin national examination procedures (35 USC 371(f)).

4. ☒ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).

5. ☐ A copy of the International Application as filed (35 USC 371(c)(2))
   a. ☐ is attached hereto (required only if not communicated by the International Bureau).
   b. ☐ has been communicated by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).

6. ☒ An English language translation of the International Application as filed (35 USC 371(c)(2)).

7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 USC 371(c)(3))
   a. ☐ are attached hereto (required only if not communicated by the International Bureau).
   b. ☐ have been communicated by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.

8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 USC 371(c)(3)).

9. ☒ An oath or declaration of the inventor(s) (35 USC 371(c)(4)).

10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 USC 371(c)(5)).

11. Nucleotide and/or Amino Acid Sequence Submission
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper Copy
   c. ☐ Statement verifying identity of above copies

Items 12 to 19 below concern other document(s) or information included:

12. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
   ☒ Form PTO-1449
   ☒ Copies of Listed Documents

13. ☒ An assignment for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.

14. ☒ A FIRST preliminary amendment.
   ☐ A SECOND or SUBSEQUENT preliminary amendment.

15. ☐ A substitute specification.

16. ☐ A change of power of attorney and/or address letter.

17. ☒ Application Data Sheet Under 37 CFR 1.76

18. ☒ Return Receipt Postcard

19. ☐ Other items or information:

JC17 Rec'd PCT/PTO 19 JUL 2001

U.S. APPLICATION NO. 09/889665	INTERNATIONAL APPLICATION NO. PCT/JP00/00158	ATTORNEY DOCKET NO. 401303

20. ☒ The following fees are submitted:	CALCULATIONS	PTO USE ONLY
Basic National Fee (37 CFR 1.492(a)(1)-(5)):		
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO $1,000.00		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... $ 860.00		
International preliminary examination fee (37 CFR 1.482) paid to USPTO, but international search fee (37 CFR 1.445(a)(2))paid to USPTO ..... $ 710.00		
International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... $ 690.00		
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1) to (4) ..... $ 100.00		
ENTER APPROPRIATE BASIC FEE AMOUNT=	$860.00	
Surcharge of $130.00 for furnishing the National fee or oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date	$	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	4 -20=		x $ 18.00	$	
Independent Claims	1 - 3 =		x $ 80.00	$	
☐ Multiple Dependent Claim(s) (if applicable)			+$270.00	$	

TOTAL OF ABOVE CALCULATIONS=	$860.00	
☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.	$	
SUBTOTAL=	$860.00	
Processing fee of **$130.00** for furnishing English Translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date.	$	
TOTAL NATIONAL FEE=	$860.00	
Fee for recording the enclosed assignment. The assignment must be accompanied by an appropriate cover sheet. **$40.00** per property +	$40.00	
TOTAL FEE ENCLOSED=	$900.00	
	Amount to be: refunded	$
	charged:	$

a. ☒ A check in the amount of $900.00 to cover the above fee is enclosed.

b. ☐ Please charge Deposit Account No. 12-1216 in the amount of $ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 12-1216. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

23548

PATENT TRADEMARK OFFICE

Jeffrey A. Wyand, Registration No. 29,458
One of the Attorneys for Applicant(s)

July 19, 2001
Date

PATENT
Attorney Docket No. 401303/SOGA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

SHIGEKI YAMAKAWA

Application No. Unknown

Filed: July 19, 2001

For: ELEVATOR SYSTEM

Art Unit: Unknown

Examiner: Unknown

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Prior to the examination of the above-identified patent application, please enter the following amendments and consider the following remarks.

IN THE SPECIFICATION:

Replace the paragraph beginning at page 3, line 5 with:

Fig. 4 is a plan view of the hoistway as viewed from above the elevator hoistway of the second embodiment of the present invention;

Replace the paragraph beginning at page 3, line 8 with:

Fig. 6 is a plan view of the hoistway as viewed from above the elevator hoistway of the elevator system shown in Fig. 5.

IN THE CLAIMS:

Replace the indicated claims with:

1. (Amended) An elevator system comprising;

a hoistway including a hoistway wall and a bottom portion, said hoistway wall including a protrusion projecting from said hoistway wall inside said hoistway;

a vertical moving member ascending and descending the hoistway along a direction and not interfering with said protrusion; and

a control panel for controlling movement of said vertical moving member, said control panel being disposed within said hoistway and overlapping with a projected region of said protrusion, projected in the direction of movement of said vertical moving member.

2. (Amended) The elevator system as claimed in claim 1 wherein said control panel is positioned above an opening in the hoistway wall for providing access to said hoistway.

3. (Amended) The elevator system as claimed in claim 2 wherein said opening in said hoistway wall includes a landing floor door mechanism for opening and closing said opening portion, and said control panel is installed above said landing floor door mechanism.

4. (Amended) The elevator system as claimed in claim 1 including a vertical moving member with a door mechanism for engaging a landing floor door mechanism for opening and closing an opening portion, wherein said control panel at least partly overlaps a projected region of said vertical moving member door mechanism projected in the direction of movement of said vertical moving member and above a highest position of said vertical moving member within said hoistway.

IN THE ABSTRACT:

Replace the Abstract with:

ABSTRACT

An elevator system includes a hoistway including a hoistway wall and a bottom portion, the hoistway wall including a protrusion projecting from the hoistway wall inside the hoistway, a vertical moving member ascending and descending the hoistway without interfering with the protrusion, and a control panel for controlling the movement of the vertical moving member, the control panel being disposed within the hoistway and in an overlapping relationship with a projected region of the protrusion, projected in the direction of movement of the vertical moving member. The space within the hoistway is efficiently utilized and easy maintenance of the elevator system is provided.

REMARKS

The foregoing Amendment corrects translational errors and conforms the claims to United States practice.

Respectfully submitted,

LEYDIG, VOIT & MAYER, LTD.

Jeffrey A. Wyand
Registration No. 29,458

Suite 300
700 Thirteenth Street, N.W.
Washington, D.C. 20005
Telephone: (202) 737-6770
Facsimile: (202) 737-6776

Date: July 19, 2004
JAW:ves

PATENT
Attorney Docket No. 401303/SOGA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

SHIGEKI YAMAKAWA

Application No. Unknown

Filed: July 19, 2001

For: ELEVATOR SYSTEM

Art Unit: Unknown

Examiner: Unknown

AMENDMENTS TO SPECIFICATION, CLAIMS AND ABSTRACT MADE VIA PRELIMINARY AMENDMENT

Amendments to the paragraph beginning at page 3, line 5:

Fig. 4 is a plan view of the hoistway as viewed from ~~the~~ above ~~of~~ the elevator hoistway of the second embodiment of the present invention;

Amendments to the paragraph beginning at page 3, line 8:

Fig. 6 is a plan view of the hoistway as viewed from ~~the~~ above ~~of~~ the elevator hoistway of the elevator system shown in Fig. 5.

Amendments to existing claims:

1. (Amended) An elevator system comprising;

a hoistway including a hoistway wall and a bottom portion, said hoistway wall including a protrusion ~~of a building structural member or an equipment attached to the building wall, said protrusion~~ projecting from said hoistway wall ~~toward the~~ inside ~~of~~ said hoistway;

a vertical moving member ascending and descending the hoistway ~~without~~ along a direction and not interfering with said protrusion ~~including~~; and

a control panel for controlling ~~the~~ movement of said vertical moving member, said control panel being disposed within said hoistway and ~~in an~~ overlapping ~~relationship~~ with a projected region of said protrusion, projected in the direction of movement of said vertical moving member.

2. (Amended) The elevator system as claimed in claim 1 wherein said control panel is positioned above an opening ~~portion~~ in the hoistway wall for providing ~~an~~ access to said hoistway.

3. (Amended) The elevator system as claimed in claim ~~1~~ 2 wherein said opening ~~portion~~ in said hoistway wall ~~provided for the entrance to the hoistway is provided with~~ includes a landing floor door mechanism for opening and closing said opening portion, and said control panel is installed above said landing floor door mechanism.

4. (Amended) The elevator system as claimed in claim 1 ~~wherein~~ including a vertical moving member ~~is provided~~ with a door mechanism for engaging ~~with~~ a landing floor door mechanism for opening and closing an opening portion~~; and~~, wherein said control panel ~~is disposed at a position~~ at least partly ~~overlapping with~~ overlaps a projected region of said vertical moving member door mechanism projected in the direction of movement of said vertical moving member and above ~~the~~ a highest position of said vertical moving member within said hoistway.

Amendments to the abstract:

ABSTRACT

An elevator system ~~comprises~~ includes a hoistway ~~(1)~~ including a hoistway wall and a bottom portion, the hoistway wall including a protrusion ~~of a building structural member (16) or an equipment (14) attached to the building wall, the protrusion~~ projecting from the hoistway wall ~~toward the~~ inside ~~of~~ the hoistway, a vertical moving member ~~(1)~~ ascending and descending the hoistway without interfering with the protrusion ~~including~~, and a control panel ~~(6)~~ for controlling the movement of the vertical moving member, the control panel being disposed within the hoistway and in an overlapping relationship with a projected region of the protrusion, projected in the direction of movement of the vertical moving member. ~~Therefore, the~~The space within the hoistway ~~can be~~ is efficiently utilized and ~~the elevator system of~~ easy maintenance ~~can be~~ of the elevator system is provided.

PATENT
Attorney Docket No. 401303/SOGA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

SHIGEKI YAMAKAWA

Application No. Unknown

Filed: July 19, 2001

For: ELEVATOR SYSTEM

Art Unit: Unknown

Examiner: Unknown

PENDING CLAIMS AFTER ENTRY OF PRELIMINARY AMENDMENT

1. An elevator system comprising;

a hoistway including a hoistway wall and a bottom portion, said hoistway wall including a protrusion projecting from said hoistway wall inside said hoistway;

a vertical moving member ascending and descending the hoistway along a direction and not interfering with said protrusion; and

a control panel for controlling movement of said vertical moving member, said control panel being disposed within said hoistway and overlapping with a projected region of said protrusion, projected in the direction of movement of said vertical moving member.

2. The elevator system as claimed in claim 1 wherein said control panel is positioned above an opening in the hoistway wall for providing access to said hoistway.

3. The elevator system as claimed in claim 2 wherein said opening in said hoistway wall includes a landing floor door mechanism for opening and closing said opening portion, and said control panel is installed above said landing floor door mechanism.

4. The elevator system as claimed in claim 1 including a vertical moving member with a door mechanism for engaging a landing floor door mechanism for opening and closing an opening portion, wherein said control panel at least partly overlaps a projected region of said vertical moving member door mechanism projected in the direction of movement of said vertical moving member and above a highest position of said vertical moving member within said hoistway.

SPECIFICATION

ELEVATOR SYSTEM

TECHNICAL FIELD

This invention relates to an elevator system and, in particular, to an elevator system having a control panel within the hoistway.

BACKGROUND ART

In a conventional elevator system, a hoist, a control panel and the like are installed in a machine room disposed above the hoistway, so that an installation space for the machine room must be maintained at the highest portion of the building, thus decreasing the utility efficiency of the building and the height of the building inevitably increases.

On the other hand, an elevator system with no machine room is proposed in which, as shown in Figs. 5 and 6 for example, the hoist and the control panel are installed in an overlapping relationship within a gap defined between the hoistway wall and the travel region of the car which is a moving member. In the figures, the reference numeral 1 is a hoistway, 2 is an elevator car which is a member ascending and descending within the hoistway, 3 is a hoist for driving the car 2 up and down, 4 is a main rope wound on the hoist 3 for supporting the car 2, 5 is a counter weight supported on the main rope 4 at the opposite side of the car 2, 6 is a control panel for driving and controlling the hoist 3, 7 are car guide rails disposed for guiding the car 2 moving up and down, 8 are counter weight guide rails for guiding the counter weight 5 moving up and down along the hoist way, 9 is a landing floor at which the passengers enter into and exit from the elevator car 2, 10 is a floor door disposed at the landing floor 9, 11 is a car door mounted to the car 2 and opened and closed in connection with the landing floor door 10, and 12 is a door mechanism for supporting the car door 11 and operating with the car door 11 suspended therefrom.

Also, Japanese Patent Laid-open No. 7-10434 (corresponding to European Patent Application EP 0631967) discloses an elevator system in which the hoist and the control panel are mounted at the highest portion of the hoistway and the machine room is eliminated. Also, Japanese Patent Laid-Open No. 7-10437 (corresponding to European Patent Application No. EP 0631968) discloses an elevator system in which the hoist and the control panel are installed at the bottom portion of the hoistway and the machine room is eliminated. However, in these elevator systems, even though the machine room can be eliminated, the height of the hoistway may be increased or the horizontal projection area of the hoistway may be increased.

Further, Japanese Laid-Open No. 8-40675 (corresponding to European Patent Application EP 0680920) discloses the housing of the main portion of the drive unit including the control panel within the depth of the cave formed in the side wall of the hoistway. With this measure, however, depth or the thickness of the drive unit that should be housed within the cave must be limited in the direction of the hoistway side wall thickness, resulting in difficulties in designing the configuration of the drive unit. Also, with this structure, the side of the drive unit opposite to the hoistway inevitably faces to rooms or passages adjacent to the hoistway, making it necessary to provide a counter measure for the elevator noise.

DISCLOSURE OF INVENTION

This invention has been made to solve the above-discussed problems of the conventional design and has as its object the provision of an elevator system having a reduced burden on the building and an improved utility efficiency without the need for the opening in the hoistway walls except for the entrance and exit and by making the height of the building small.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more readily apparent from the following detailed description of the preferred embodiments of the present invention taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view of an elevator system of the first embodiment of the present invention;

Fig. 2 is a vertical sectional view of an elevator system of the first embodiment of the present invention;

Fig. 3 is a vertical sectional view of the top portion of the hoistway of an elevator system of the second embodiment of the present invention;

Fig. 4 is a plan view of the hoistway as viewed from the above of the elevator hoistway of the second embodiment of the present invention;

Fig. 5 is a perspective view of a conventional elevator system; and

Fig. 6 is a plan view of the hoistway as viewed from the above of the elevator hoistway of the elevator system shown in Fig. 5.

BEST MODE FOR CARRYING OUT THE INVENTION

The best mode of the present invention will now be described with reference to the accompanying drawings.

Embodiment 1

Fig. 1 is a perspective view of an elevator system of the first embodiment of the present invention and Fig. 2 is a vertical sectional view of an elevator system of the present invention. In the figures, the same components designated by the same reference characters as those in Figs. 5 and 6 in connection with the background art are identified by the same reference characters. The reference characters 1 is a hoistway, 2 is an elevator car which is a member ascending and descending within the hoistway, 3 is a hoist for driving the car 2 up and down, 4 is a main rope wound on the hoist 3 for supporting the car 2, 5 is a counter weight supported on the main rope 4 at the opposite side of the car 2, 6 is a control panel for driving and controlling the hoist 3, 7 are car guide rails disposed for guiding the car 2 moving up and down, 8 are counter weight guide rails for guiding the counter weight 5 moving up and down along the hoist way, 9 is a landing floor at which the passengers enter into and exit from the elevator car 2, 10 is a floor door disposed at the landing floor 9, 11 is a car door mounted to the car 2 and opened and closed in connection with the landing floor door 10, and 12 is a door mechanism for supporting the car door 11 and operating with the car door 11 suspended therefrom. 13 is a car sill for guiding the car door 11 sliding between the open and closed positions, 14 is a landing floor door mechanism for supporting the landing floor door 10 therefrom, 15 is a landing floor sill for guiding the landing floor door 10 sliding between the

open and closed position, 16 is a building structural member projecting into the hoistway 1 for supporting the landing floor sill 15 thereon, and 17 is an opening portion provided in the hoistway 1 for providing the access to the elevator car 2.

In the elevator system with such the structure, the control panel 6 for driving and controlling the hoist 3 is installed within the hoistway 1 and within a region defined by a vertical projection to a horizontal plane of an overhang portion which is a portion projected into the hoistway such as the landing floor mechanism 14, the landing floor sill 15 and the building structure member 16, so that it cannot interfere with the region within the hoistway in which the moving member such as the car 2. Also, at the landing floor opening 17 at which no vertically elongated members such as the main rope, the governor rope, the guide rails and the like are present so that they do not interfere, so that it cannot happen that the control panel installed above the entrance opening interferes the above-mentioned members and that the maintenance of the control panel is not impeded. Further, when the control panel is positioned above the opening in a similar manner, the maintenance of the control panel above the opening portion can be easily carried out by moving the car to the position allowing the personnel to ride on the car top, then the power source is interrupted to stop the car and then the landing floor door is opened from the landing floor side, ride on the car top which serves as the foothold to achieve the maintenance of the control panel above the opening portion.

Embodiment 2

While the control panel 6 is disposed between two floors with landings in the first embodiment shown in Fig. 2, the control panel may also be disposed above the landing floor of the top-most floor as illustrated in Fig. 3 for example. In this case, a control panel having a large horizontal thickness beyond the projection portions from the hoistway wall can be used by positioning it above the travel path or higher than the top end of the travel of the elevator car.

Fig. 3 is a vertical sectional view of the top portion of the hoistway of an elevator system of the second embodiment of the present invention, and Fig. 4 is a plan view of the hoistway as viewed from the above of the elevator hoistway of the second embodiment of the present invention. In the figures, the same components designated by the same reference characters are identified by the

same reference characters. The reference character 17 is the top-most landing floor, 18 is the ceiling of the top portion of the hoistway and 19 is the elevator car at the highest position in the hoistway 1.

In such the elevator system, the control panel 6 is disposed within the hoistway and above the protrusions such as landing floor door mechanism 14, the landing floor sill 15 and the building structure member 16 projecting into the hoistway, and has the structure having a thickness projecting to the position above the car door mechanism. It is to be noted that the elevator car 2 does not interfere with the control panel 6 because the latter is disposed above the highest position 19 in the hoistway. Therefore, the thickness of the control panel 6 can be designed without being limited by the dimensions of the protrusions from the hoistway wall. Also, the amount of protrusion of the control panel above the car can be receded by an amount corresponding to the dimension of the above protrusions, so that the interference at the time of maintenance on the car top can be alleviated. By making the protrusion extend above the door mechanism on which no one steps during the maintenance, almost no obstacle is generated. Also, the surface of the control panel is close to the maintenance area on the car, so that the maintenance of the control panel is easy.

INDUSTRIAL APPLICABILITY

According to the present invention, a control panel for controlling the movement of a vertical moving member is disposed within a hoistway and in an overlapping relationship with a projected region of a protrusion of a building structural member or an equipment attached to the building wall in the direction of movement of said vertical moving member, so that the so-called machine room is not necessary and the control panel can be installed without the fear of interferring it with the vertical moving member travelling within the hoistway.

Also, the control panel is positioned above an opening portion in the hoistway wall for providing an access to the hoistway, so that, since no vertically elongated elevator member is not installed immediately at the opening portion, the control panel mounted above the opening portion does not interfere with the above-mentioned members, so that no difficulty is paused in maintaining the control panel.

Also, the control panel is installed above the landing floor door mechanism, so that the control panel can be easily accessed and maintained by opening the landing floor door mechanism and stepping on the car top.

Further, the control panel is disposed at a position above the highest position of the vertical moving member within the hoistway, so that the thickness of the control panel can be designed without being limited by the dimensions of the protrusions from the hoistway wall, and the amount of protrusion of the control panel above the car can be receded by an amount corresponding to the dimension of the above protrusions, so that the interference at the time of maintenance on the car top can be alleviated. Also, the surface of the control panel is close to the maintenance area on the car, so that the maintenance of the control panel is easy.

CLAIMS

1. An elevator system comprising;

a hoistway including a hoistway wall and a bottom portion, said hoistway wall including a protrusion of a building structural member or an equipment attached to the building wall, said protrusion projecting from said hoistway wall toward the inside of said hoistway;

a vertical moving member ascending and descending the hoistway without interfering said protrusion including; and

a control panel for controlling the movement of said vertical moving member, said control panel being disposed within said hoistway and in an overlapping relationship with a projected region of said protrusion in the direction of movement of said vertical moving member.

2. The elevator system as claimed in claim 1 wherein said control panel is positioned above an opening portion in the hoistway wall for providing an access to said hoistway.

3. The elevator system as claimed in claim 1 wherein said opening portion in said hoistway wall provided for the entrance to the hoistway is provided with a landing floor door mechanism for opening and closing said opening portion, and said control panel is installed above said landing floor door mechanism.

4. The elevator system as claimed in claim 1 wherein a vertical moving member is provided with a door mechanism for engaging with a landing floor door mechanism for opening and closing an opening portion; and wherein

said control panel is disposed at a position at least partly overlapping with a projected region of said vertical moving member door mechanism in the direction of movement of said vertical moving member and above the highest position of said vertical moving member within said hoistway.

ABSTRACT

An elevator system comprises a hoistway (1) including a hoistway wall and a bottom portion, the hoistway wall including a protrusion of a building structural member (16) or an equipment (14) attached to the building wall, the protrusion projecting from the hoistway wall toward the inside of the hoistway, a vertical moving member (1) ascending and descending the hoistway without interfering the protrusion including, and a control panel (6) for controlling the movement of the vertical moving member, the control panel being disposed within the hoistway and in an overlapping relationship with a projected region of the protrusion in the direction of movement of the vertical moving member.

Therefore, the space within the hoistway can be efficiently utilized and the elevator system of easy maintenance can be provided.

Title: ELEVATOR SYSTEM
Inventors: Shigeki YAMAKAWA
Atty Docket No.: 401303
Leydig, Voit & Mayer, Ltd.
202-737-6770

FIG. 1

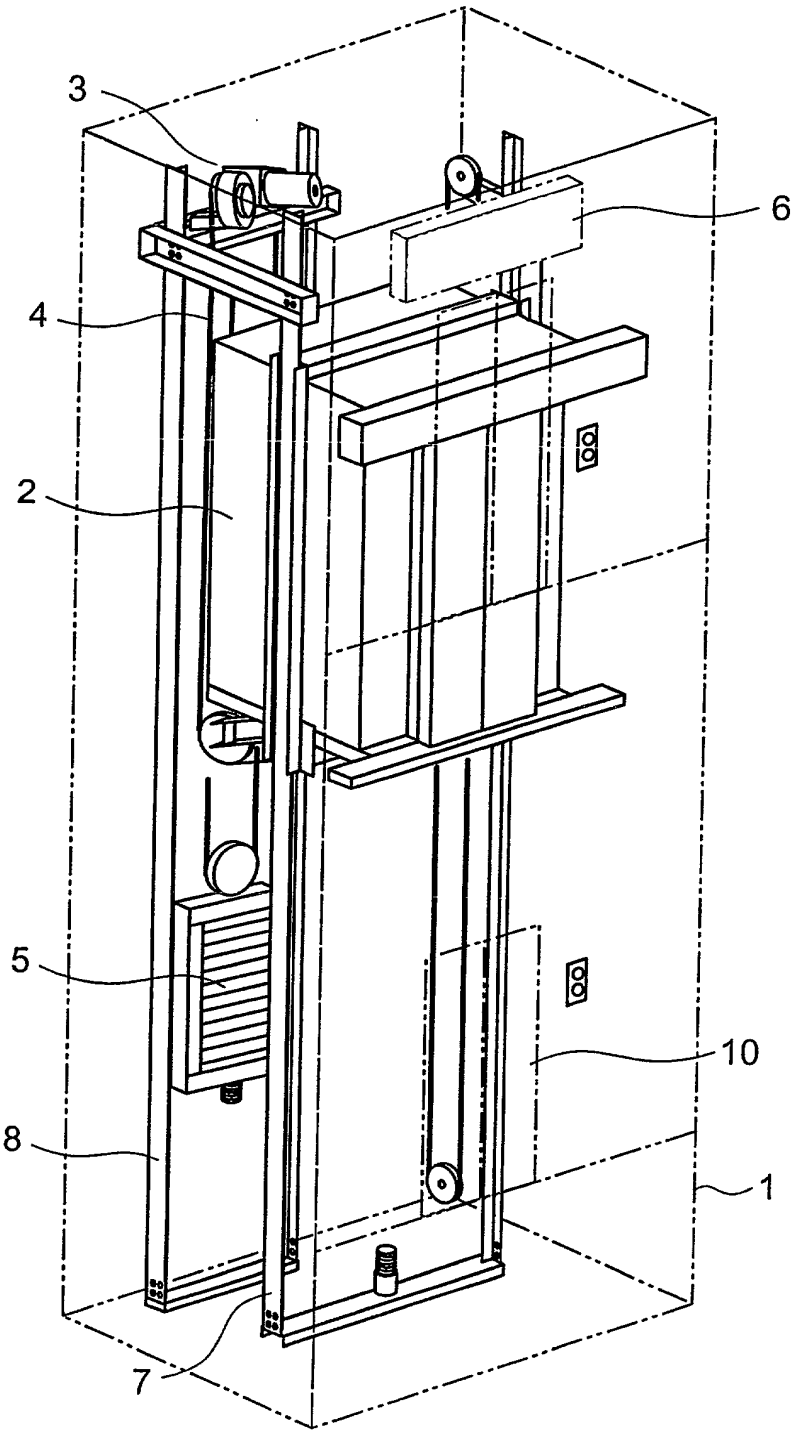


FIG. 2

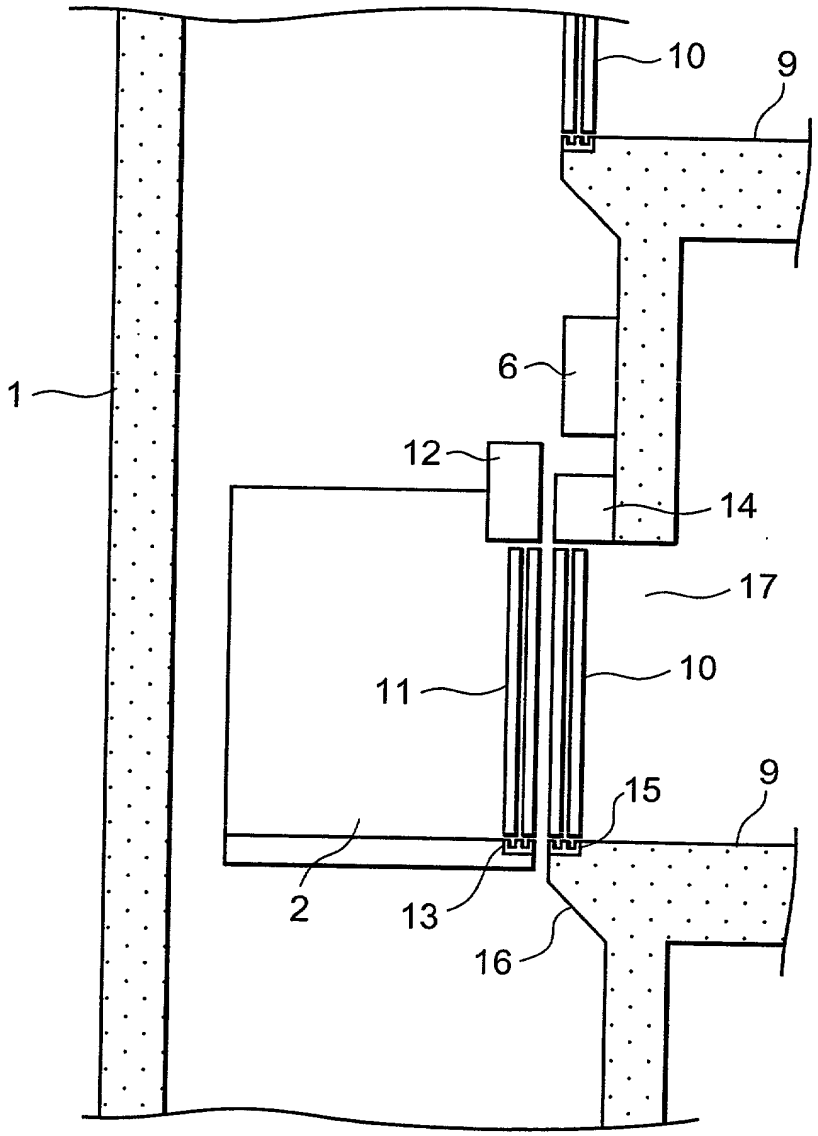


FIG. 3

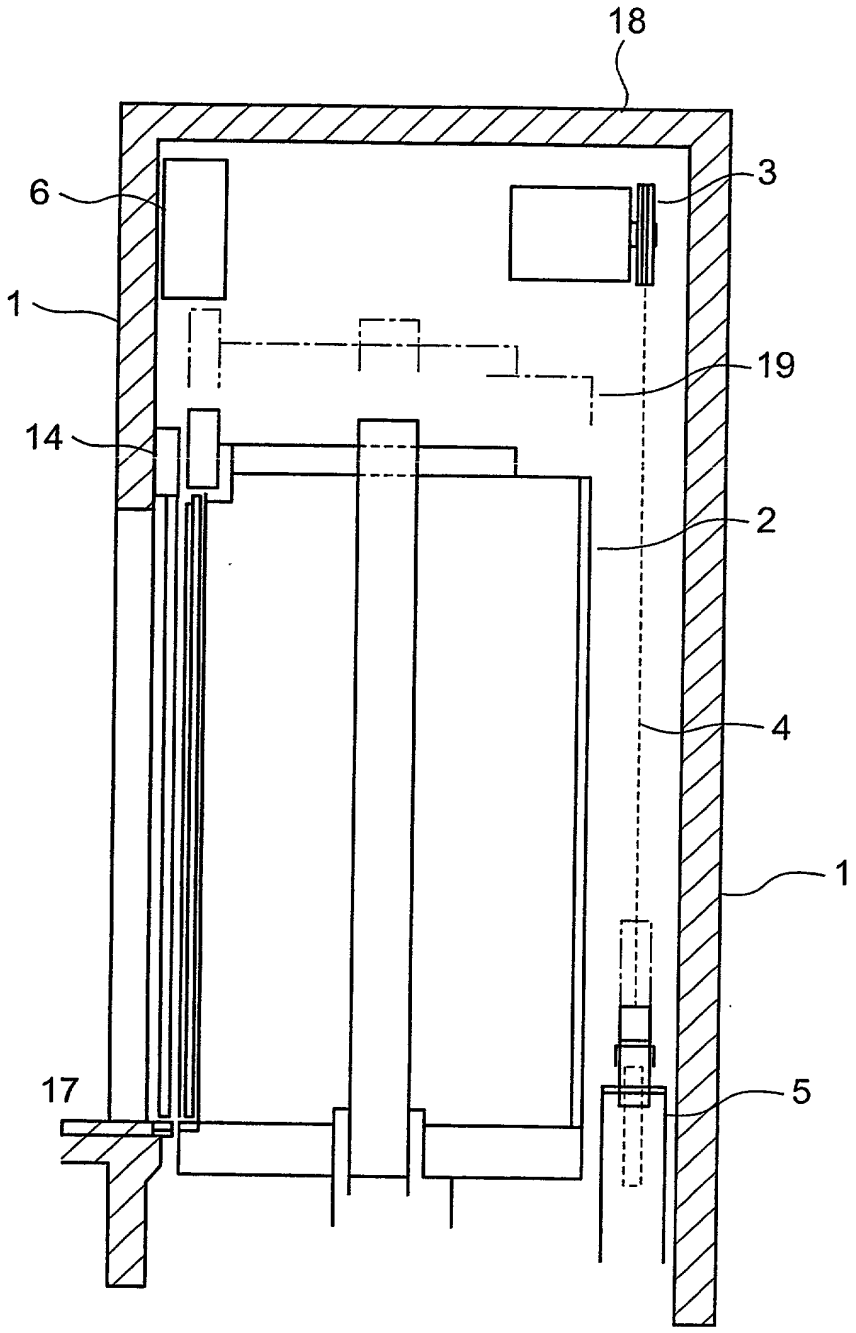
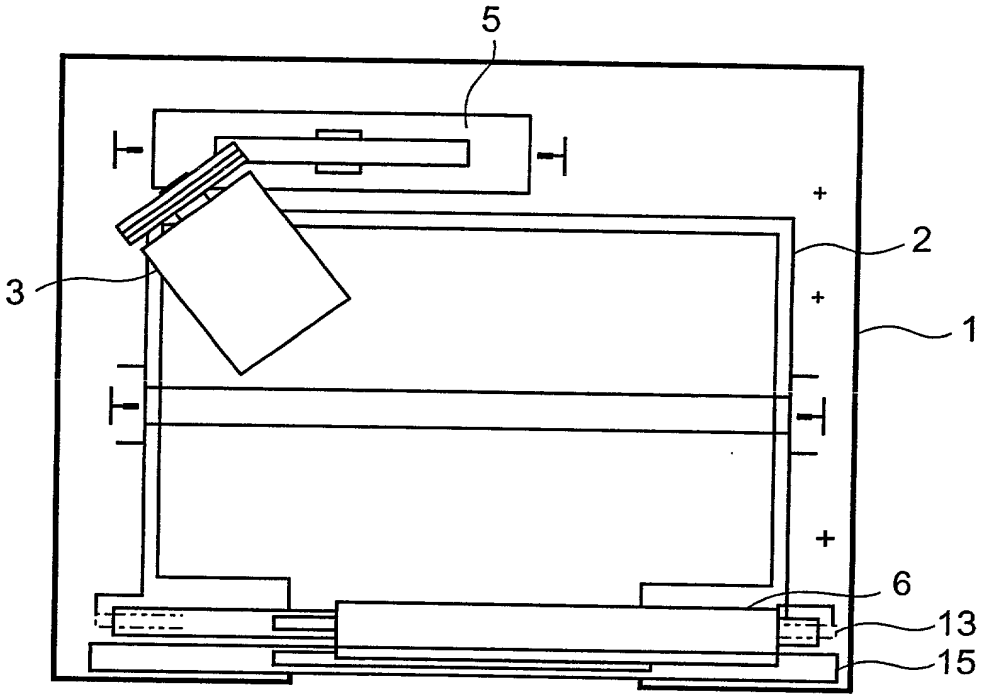


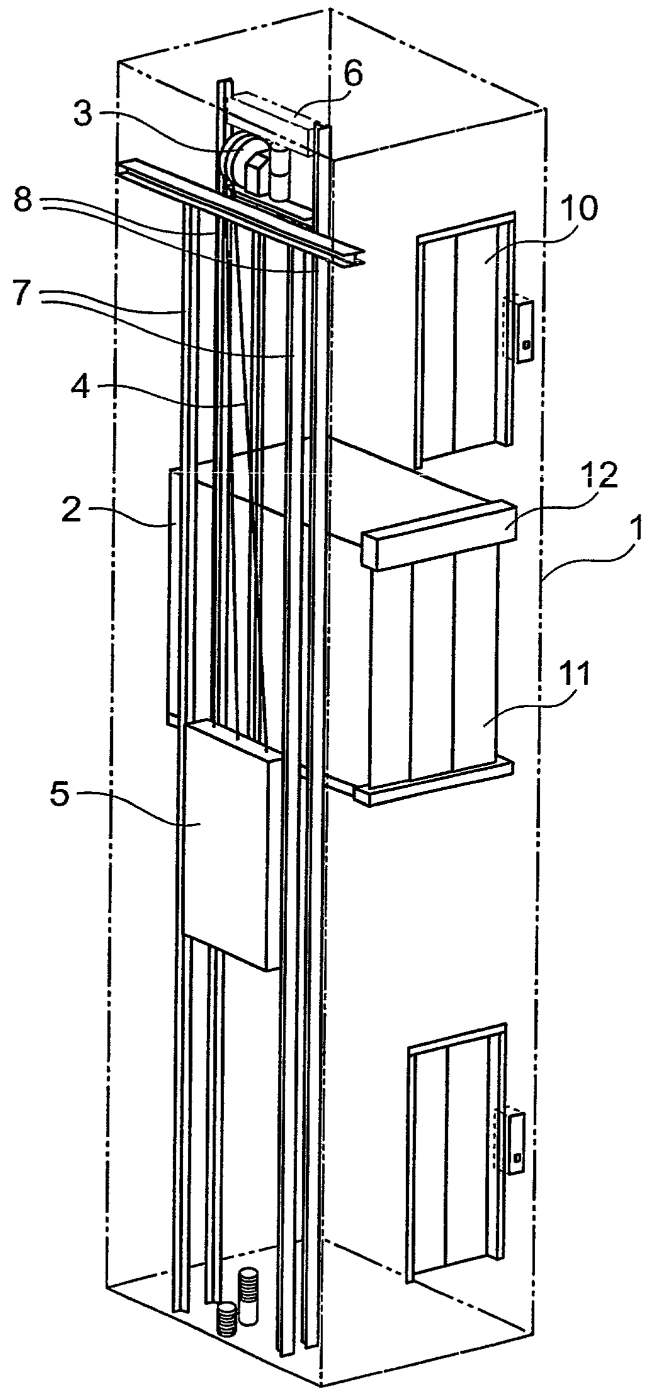
FIG. 4



Title: ELEVATOR SYSTEM
Inventors: Shigeki YAMAKAWA
Atty Docket No.: 401303
Leydig, Voit & Mayer, Ltd.
202-737-6770

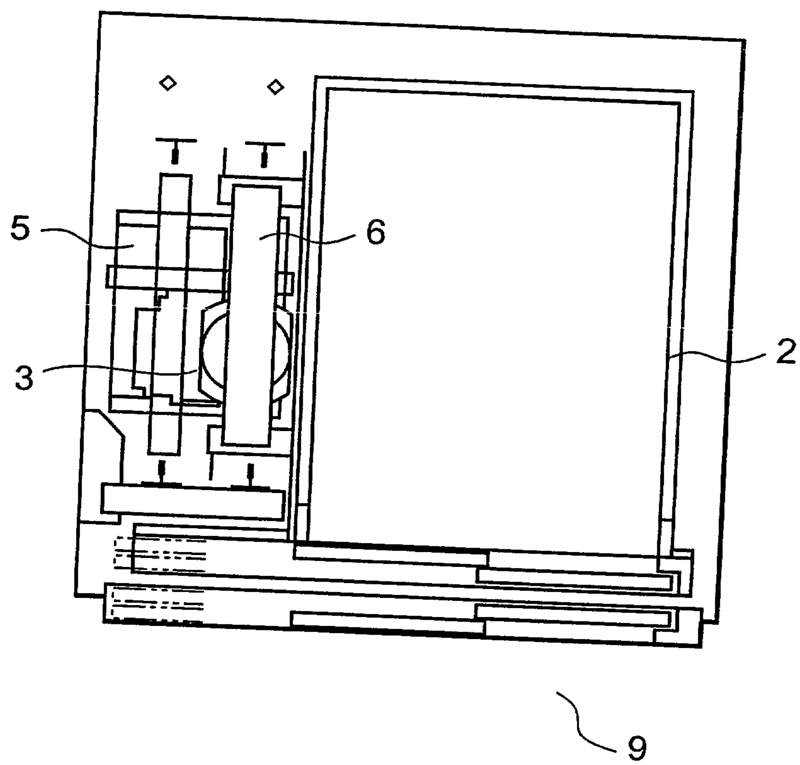
09/889665

FIG. 5



09/889665

FIG. 6



APPLICATION INFORMATION

Application Type::	Regular
Subject Matter::	Utility
Suggested classification::	
Suggested Group Art Unit::	
CD-ROM or CD-R?::	None
Number of CD Disks:	
Number of Copies of CDs::	
Sequence Submission?::	
Computer Readable From (CRF)?::	No
Number of Copies of CRF::	
Title::	ELEVATOR SYSTEM
Attorney Docket Number::	401303
Request for Early Publication?::	No
Request for Non-Publication?::	No
Suggested Drawing Figure::	
Total Drawing Sheets::	6
Small Entity::	No
Licensed US Govt. Agency::	
Contract or Grant Numbers::	
Secrecy Order in Parent Appl.?::	No

INVENTOR INFORMATION

Inventor Authority Type::	Inventor
Primary Citizenship Country::	JAPAN
Status::	Full Capacity
Given Name::	Shigeki
Middle Name::	
Family Name::	YAMAKAWA
Name Suffix::	
City of Residence::	Tokyo

State or Prov. of Residence::

Country of Residence:: JAPAN

Street:: c/o Mitsubishi Denki Kabushiki Kaisha
2-3, Marunouchi 2-chome, Chiyoda-ku

City:: Tokyo

State or Province::

Country:: JAPAN

Postal or Zip Code:: 100-8310

CORRESPONDENCE INFORMATION

Correspondence Customer Number:: 23548

Phone:: (202) 737-6770

Fax:: (202) 737-6776

Electronic Mail:: dcmail@leydig.com

REPRESENTATIVE INFORMATION

Representative Customer Number::	23548	
Representative Designation::	Registration Number::	Representative Name::

FOREIGN APPLICATION INFORMATION

Country::	Application Number::	Filing Date::
JAPAN	PCT/JP00/00158	January 17, 2000

Initial 07/19/01

ASSIGNEE INFORMATION

Assignee name:: Mitsubishi Denki Kabushiki Kaisha
Street:: 2-3, Marunouchi 2-chome, Chiyoda-ku

City:: Tokyo
State or Province::
Country:: JAPAN
Postal or Zip Code:: 100-8310

Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書

下記の氏名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者（下記の名称が複数の場合）であると信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled.

ELEVATOR SYSTEM

上記発明の明細書は、

☐ 本書に添付されています。

☐ ___月___日に提出され、米国出願番号または特許協定条約国際出願番号を_____とし、（該当する場合）_____に訂正されました。

the specification of which

☐ is attached hereto.

☒ was filed on January 17, 2000 as United States Application Number or PCT International Application Number PCT/JP 00/00158 and was amended on _____ (if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されるとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Japanese Language Declaration
(日本語宣言書)

私は、米国法典第35編119条（a）-（d）項又は365条（b）項に基づき下記の、米国以外の国の少なくとも一ヵ国を指定している特許協力条約365（a）項に基づく国際出願、又は外国での特許出願もしくは発明者証の出願についての外国優先権をここに主張するとともに、優先権を主張している、本出願の前に出願された特許または発明者証の外国出願を以下に、枠内をマークすることで、示しています。

I hereby claim foreign priority under Title 35, United States Code, Section 119 (a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)
外国での先行出願

(Number) (番号)	(Country) (国名)	(Day/Month/Year Filed) (出願年月日)	Priority Claimed 優先権主張 Yes はい	No いいえ
			☐	☐
			☐	☐

私は、第35編米国法典119条（e）項に基づいて下記の米国特許出願規定に記載された権利をここに主張いたします。

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

(Application No.) (出願番号)	(Filing Date) (出願日)

私は、下記の米国法典第35編120条に基づいて下記の米国特許出願に記載された権利、又は米国を指定している特許協力条約365条（c）に基づく権利をここに主張します。また、本出願の各請求範囲の内容が米国法典第35編112条第1項又は特許協力条約で規定された方法で先行する米国特許出願に開示されていない限り、その先行米国出願書提出日以降で本出願書の日本国内または特許協力条約国際提出日までの期間中に入手された、連邦規則法典第37編1条56項で定義された特許資格の有無に関する重要な情報について開示義務があることを認識しています。

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of application.

(Application No.) (出願番号)	(Filing Date) (出願日)	(Status: Patented, Pending, Abandoned) (現況：特許許可済、係属中、放棄済)

私は、私自信の知識に基づいて本宣言書中で私が行なう表明が真実であり、かつ私の入手した情報と私の信じるところに基づく表明が全て真実であると信じていること、さらに故意になされた虚偽の表明及びそれと同等の行為は米国法典第18編第1001条に基づき、罰金または拘禁、もしくはその両方により処罰されること、そしてそのような故意による虚偽の声明を行なえば、出願した、又は既に許可された特許の有効性が失われることを認識し、よってここに上記のごとく宣誓を致します。

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Japanese Language Declaration
（日本語宣言書）

委任状： 私は本出願を審査する手続を行い、且つ米国特許商標庁との全ての業務を遂行するために、記名された発明者として、下記の弁護士及び／または弁理士を任命する。（氏名及び登録番号を記載すること）	POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (list name and registration number).
書類送付先  23548 PATENT TRADEMARK OFFICE	Send Correspondence to:
直通電話連絡先：（氏名及び電話番号）  23548 PATENT TRADEMARK OFFICE	Direct Telephone Calls to: (name and telephone number)

唯一または第一発明者氏名		Full name of sole or first inventor Shigeki YAMAKAWA
発明者の署名	日付	Inventor's signature Date Shigeki Yamakawa June 28, 2001
住所		Residence Tokyo, Japan JPX
国籍		Citizenship Japan
郵便の宛先		Post Office Address c/o Mitsubishi Denki Kabushiki Kaisha, 2-3, Marunouchi 2-chome, Chiyoda-ku, TOKYO 100-8310 JAPAN
第二共同発明者がいる場合、その氏名		Full name of second joint inventor, if any
第二共同発明者の署名	日付	Second inventor's signature Date
住所		Residence
国籍		Citizenship
郵便の宛先		Post Office Address

（第三以下の共同発明者についても同様に記載し、署名をすること）

(Supply similar information and signature for third and subsequent joint inventors.)